

REQUEST FOR RECONSIDERATION

Claims 1-20 remain active in this application.

The claimed invention is directed to a process for preparing at least one polyisocyanate by reacting organic amine and phosgene in an inert solvent, in at least three stages, the pressure in each successive stage being lower than the previous stage.

Isocyanate preparation by reaction of an amine with phosgene is generally known. However issues as to yield and space-time yields prompts further investigation into efficient preparation methods of isocyanates.

The claimed invention addresses this problem by providing a process for preparing at least one polyisocyanate by reacting organic amine and phosgene in an inert solvent, in at least three stages, **the pressure in each successive stage being lower than the previous stage**, and wherein in the third stage, a carbamoyl chloride is dissociated into isocyanate and hydrogen chloride. Applicants have discovered that such a process in which the pressure is successively lower in at least three sequential stages, allows for the efficient production of polyisocyanates. Such a process is nowhere disclosed or suggested in the cited art of record.

The rejections of claims 1-20 under 35 U.S.C. §103(a) over Penzel et al. WO 99/54289 as evidenced by Penzel et al. U.S. 6,576,788 is respectfully traversed.

Penzel et al. fails to disclose or suggest an at least three stage process in which the **pressure in each successive stage is lower than that of the previous stage**.

Penzel et al. is cited for a disclosure of a two-stage reaction of diphenylmethanediamines and polyphenylpolymethylenepolyamines with phosgene in an organic solvent (see abstract). There is no disclosure of a pressure drop along three successive stages.

In contrast, the claimed invention is directed to a polyisocyanates producing process in which at least three stages are used, **the pressure is reduced in successive stage**.

Page 6 of the official action asserts that “natural pressure drop across the system is reasonably expected.”

Applicants respectfully submit that the claim limitation of the **pressure in each successive stage is lower than that of the previous stage** is a claim limitation which is not disclosed or suggested in the cited reference nor is it reasonably expected to naturally occur.

The deficiency of Penzel et al. to disclose the claim limitation of the **pressure in each successive stage being lower than that of the previous stage** is clear by the assertion in the official action that such a pressure drop is natural. Such an assertion as to a natural occurrence is not supported by any evidence and a mere assertion can not take the place of an actual disclosure of the claim limitation.

Furthermore, the only disclosure in Penzel et al. relating to pressure is the operation at **a single pressure** of 4.3 bar (column 8, line 16). This single pressure fails to suggest the claim limitation of the **pressure in each successive stage being lower than that of the previous stage**.

Page 6 of the official action attempts to assert that pressure is a result dependent variable. However, the mere reporting of an operating pressure fails to identify pressure as a result effective variable as no variance in pressure or any varied result is identified. How can pressure be described as a result dependent variable when the result is not disclosed? Moreover, the mere concept of pressure being identified as a variable is not supported by any evidence as only a **single pressure** is reported. A single pressure is not varied and therefore is not evidence of pressure being a variable.

Furthermore, the assertion that a pressure drop across stages is natural and reasonably expected is contradicted by the chemical reactions undergoing.

In a third stage of the claimed process a carbamoyl chloride is dissociated into an isocyanate and hydrogen chloride gas. The dissociation of a single molecule into two

molecules, in which one of the products, is a gas (HCl), would be expected to increase the pressure in the system, due to the generation of a molecule of gas. Such an increase in pressure is independent of the specific nature of the carbamoyl chloride. If carbamoyl chloride is a liquid, dissociation would, at worst, yield one mole of liquid isocyanate and one mole of gaseous HCl. The pressure of the liquid isocyanate and gaseous HCl would be greater than that of the liquid carbamoyl chloride. If the carbamoyl chloride were a gas, dissociate would, at worst yield one mole of gaseous isocyanate and one mole of gaseous HCl. The pressure of the two moles of gas (isocyanate and HCl) would be greater than that of one mole of gaseous carbamoyl chloride. Thus, the chemistry of the dissociation process would not naturally provide a decrease in pressure between the second and third stages.

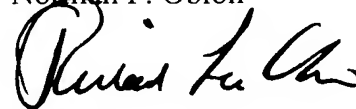
Since the dissociation of carbamoyl chloride into isocyanate and HCl would otherwise **increase the pressure**, it would not be obvious to conduct a process in which the pressure of such a dissociative step was **reduced relative to the pressure of the previous stage**.

In view of the deficiencies of the cited reference, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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